

AMENDMENTS TO THE CLAIMS

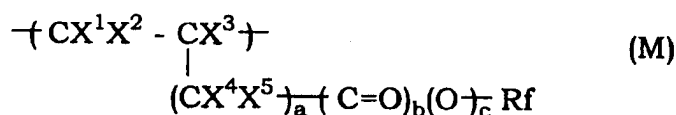
This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): A photo-curable fluorine-containing resin composition comprising:
- (a) a curable fluorine-containing polymer (I) having a number average molecular weight of from 500 to 1,000,000 and represented by the formula (1):



wherein the structural unit M is a structural unit derived from a fluorine-containing ethylenic monomer and represented by the formula (M):



wherein X^1 and X^2 are the same or different and each is H or F; X^3 is H, F, CH_3 or CF_3 ; X^4 and X^5 are the same or different and each is H, F or CF_3 ; Rf is an organic group in which 1 to 3 Y^1 ,

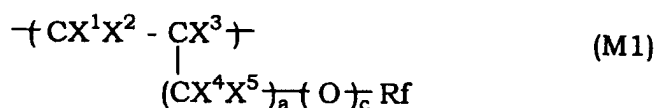
where $\text{-(Y}^1\text{Y}^1\text{-)}$ is a monovalent organic group which has 2 to 100 carbon atoms and 1 to 5

crosslinkable cyclic ether structures in which hydrogen atoms ~~may be~~ are optionally substituted with fluorine ~~atoms~~ atoms are bonded to a fluorine-containing alkyl group having 1 to 40 carbon atoms or a fluorine-containing alkyl group having 2 to 100 carbon atoms and ether bond; a is 0 or an integer of from 1 to 3; b and c are the same or different and each is 0 or 1,

the structural unit A is a structural unit derived from a monomer copolymerizable with the fluorine-containing ethylenic monomer for the structural unit represented by said formula (M), said structural unit M and said structural unit A being contained in amounts of from 0.1 to 100 % by mole and from 0 to 99.9 % by mole, respectively, and

(b) a photoacid generator (II).

2. (currently amended): The composition of Claim 1, wherein the curable fluorine-containing polymer (I) is the fluorine-containing polymer of the formula (1), in which the structural unit M is a structural unit M1 derived from a fluorine-containing ethylenic monomer and represented by the formula (M1):



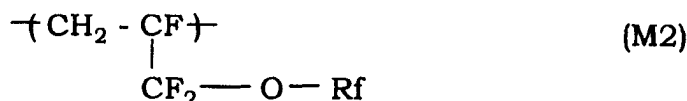
wherein X^1 and X^2 are the same or different and each is H or F; X^3 is H, F, CH_3 or CF_3 ; X^4 and X^5 are the same or different and each is H, F or CF_3 ; Rf is an organic group in which 1 to 3 Y^1 ,

where $\text{-(Y}^1\text{Y}^1\text{-)}$ is a monovalent organic group which has 2 to 100 carbon atoms and 1 to 5

crosslinkable cyclic ether structures in which hydrogen atoms ~~may be~~ are optionally substituted with fluorine ~~atoms~~ atoms are bonded to a fluorine-containing alkyl group having 1 to 40 carbon atoms or a fluorine-containing alkyl group having 2 to 100 carbon atoms and ether bond; a is 0 or an integer of from 1 to 3; c is 0 or 1.

3. (currently amended): The composition of Claim 1, wherein the fluorine-containing polymer (I) is the fluorine-containing polymer of the formula (1), in which the

structural unit M is a structural unit M2 derived from a fluorine-containing ethylenic monomer and represented by the formula (M2):



wherein Rf is an organic group in which 1 to 3 Y^1 , where $(\text{Y}^1 \text{Y}^1)$ is a monovalent organic group which has 2 to 100 carbon atoms and 1 to 5 crosslinkable cyclic ether structures in which hydrogen atoms ~~may be~~ are optionally substituted with fluorine ~~atoms~~) atoms are bonded to a fluorine-containing alkyl group having 1 to 40 carbon atoms or a fluorine-containing alkyl group having 2 to 100 carbon atoms and ether bond.

4. (currently amended): The composition of Claim 1, wherein the fluorine-containing polymer (I) is the fluorine-containing polymer of the formula (1), in which the structural unit M is a structural unit M3 derived from a fluorine-containing ethylenic monomer and represented by the formula (M3):

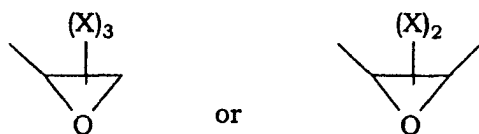


wherein Rf is an organic group in which 1 to 3 Y^1 , where $(\text{Y}^1 \text{Y}^1)$ is a monovalent organic group which has 2 to 100 carbon atoms and 1 to 5 crosslinkable cyclic ether structures in which hydrogen atoms ~~may be~~ are optionally substituted with fluorine ~~atoms~~) atoms are bonded to a fluorine-containing alkyl group having 1 to 40 carbon atoms or a fluorine-containing alkyl group having 2 to 100 carbon atoms and ether bond.

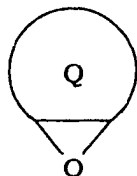
5. (previously presented): The composition of Claim 1, wherein at least one of Y^1 in Rf in said formula (M) is bonded to an end of Rf.

6. (currently amended): The composition of Claim 1, wherein Y^1 in Rf in said formula (M) is a monovalent organic group which has 2 to 100 carbon atoms and 1 to 5 crosslinkable cyclic ether structures of 3- to 6-membered ring having at least one ether bond, in which hydrogen atom of the cyclic ether structure ~~may be~~ are optionally substituted with fluorine atom.

7. (currently amended): The composition of Claim 1, wherein Y^1 in Rf in said formula (M) is an organic group having 2 to 100 carbon atoms and 1 to 5 oxirane structures which are crosslinkable cyclic ether structures of 3-membered ring and are represented by:

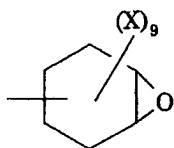


wherein X are the same or different and each is a hydrogen atom, a fluorine atom, an alkyl group having 1 to 6 carbon atoms or a fluorine-containing alkyl group having 1 to 6 carbon atoms, or an organic group having 3 to 100 carbon atoms and 1 to 5 structures represented by:



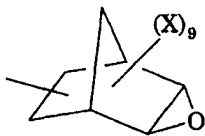
wherein Q is a monovalent or divalent organic group of monocyclic, polycyclic or heterocyclic structure having 3 to 100 carbon atoms, in which hydrogen atom of Q ~~may be~~ are optionally substituted with said X.

8. (previously presented): The composition of Claim 1, wherein Y^1 in Rf in said formula (M) is an organic group which has 6 to 100 carbon atoms and 1 to 5 structures represented by:



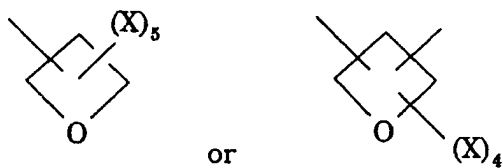
wherein X is as defined above, or

an organic group which has 7 to 100 carbon atoms and 1 to 5 structures represented by:



wherein X is as defined above.

9. (previously presented): The composition of Claim 1, wherein Y^1 in Rf in said formula (M) is an organic group which has 3 to 100 carbon atoms and 1 to 5 oxetane structures represented by:



wherein X are the same or different and each is hydrogen atom, fluorine atom, an alkyl group having 1 to 6 carbon atoms or a fluorine-containing alkyl group having 1 to 6 carbon atoms.

10. (previously presented): The composition of Claim 1, wherein a fluorine content of the curable fluorine-containing polymer (I) is not less than 40 % by weight.

11. (previously presented): The composition of Claim 1, wherein the photoacid generator (II) is at least one aromatic compound selected from the group consisting of aromatic diazonium salts, aromatic sulfonium salts, aromatic iodonium salts and metallocene compounds.

12. (currently amended): The composition of Claim 1, wherein the photoacid generator (II) is at least one aromatic compound selected from the group consisting of aromatic diazonium salts, aromatic sulfonium salts, aromatic iodonium salts and metallocene compounds, in which 1 to 4 organic groups R are bonded to the aromatic ring, wherein R are the same or different and each is hydroxyl group, thioalkyl group, thiophenoxy group or an alkyl group having 1 to 10 carbon atoms which ~~may~~ optionally have ether bond.

13. (previously presented): The composition of Claim 1, wherein the photoacid generator (II) is a compound having fluorine atom.

14. (previously presented): A cured article obtained by curing the composition of Claim 1.

15. (previously presented): A cured article obtained by photo-curing the composition of Claim 1.

16. (currently amended): An optical material for optical devices which comprises a cured product of the curable fluorine-containing polymer (I) of Claim 1.

17. (currently amended): An optical material for optical devices which comprises a cured product of the photo-curable fluorine-containing resin composition of Claim 1.

18. (previously presented): An optical member for optical devices which is obtained from a cured article made by curing the optical material for optical devices of Claim 16 .

19. (previously presented): A material for optical waveguide which is obtained from the optical material for optical devices of Claim 16 .

20. (original): A member for optical waveguide which is obtained from a cured article made by curing the material for optical waveguide of Claim 19.

21. (previously presented): A material for a sealing member for optical devices which is obtained from the optical material for optical devices of Claim 16 .

22. (original): An optical device having a sealing member which is obtained from a cured article made by curing the material for a sealing member of Claim 21.

23. (currently amended): An optical material for display devices which comprises a cured product of the curable fluorine-containing polymer (I) of Claim 1.

24. (currently amended): An optical material for display devices which comprises a cured product of the photo-curable fluorine-containing resin composition of Claim 1.

25. (previously presented): An optical member for display devices which is obtained from a cured article made by curing the optical material for display devices of Claim 23.

26. (previously presented): A material for an antireflection film which comprises the optical material for display devices of Claim 23.

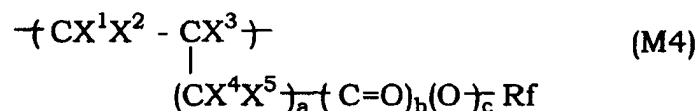
27. (original): An antireflection film obtained by curing the material for an antireflection film of Claim 26.

28. (currently amended): A fluorine-containing polymer having crosslinkable group which has a number average molecular weight of from 500 to 1,000,000 and is represented by the formula (2):

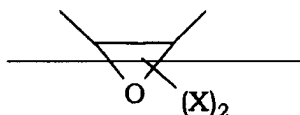
- (M4) - (B) -

(2)

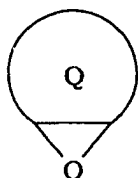
wherein the structural unit M4 is a structural unit derived from a fluorine-containing ethylenic monomer and represented by the formula (M4):



wherein X^1 and X^2 are the same or different and each is H or F; X^3 is H, F, CH_3 or CF_3 ; X^4 and X^5 are the same or different and each is H, F or CF_3 ; Rf is an organic group in which 1 to 3 Y^2 ,
~~where $(\text{Y}^2 \text{Y}^2)$ is an organic group having 2 to 100 carbon atoms and 1 to 5 crosslinkable cyclic ether structures of:~~



~~wherein X are the same or different and each is hydrogen atom, fluorine atom, an alkyl group having 1 to 6 carbon atoms or a fluorine-containing alkyl group having 1 to 6 carbon atoms, or an organic group having 3 to 100 carbon atoms and 1 to 5 structures represented by the formula:~~



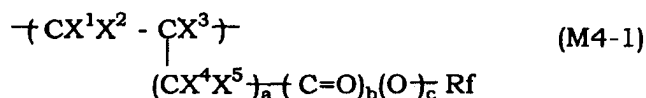
wherein Q is a monovalent or divalent organic group of monocyclic, polycyclic or heterocyclic structure having 3 to 100 carbon atoms in which ~~hydrogen-atom atoms~~ of Q ~~may be~~ are optionally substituted with said X) a hydrogen atom, a fluorine atom, an alkyl group having 1 to 6 carbon atoms or a fluorine-containing alkyl group having 1 to 6 carbon atoms are bonded to a fluorine-containing alkyl group having 1 to 40 carbon atoms or a fluorine-containing alkyl group having 2 to 100 carbon atoms and ether bond; a is 0 or an integer of from 1 to 3; b and c are the same or different and each is 0 or 1,

the structural unit B is a structural unit derived from a monomer copolymerizable with the fluorine-containing ethylenic monomer for the structural unit of said formula (M4), said structural unit M4 and said structural unit B being contained in amounts of from 0.1 to 100 % by mole and from 0 to 99.9 % by mole, respectively.

29. (currently amended): A fluorine-containing polymer having crosslinkable group which has a number average molecular weight of from 500 to 1,000,000 and is represented by the formula (2-1):

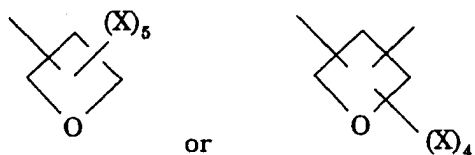


wherein the structural unit M4 is a structural unit derived from a fluorine-containing ethylenic monomer and represented by the formula (M4-1):



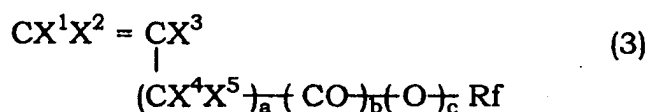
wherein X^1 and X^2 are the same or different and each is H or F; X^3 is H, F, CH_3 or CF_3 ; X^4 and X^5 are the same or different and each is H, F or CF_3 ; Rf is an organic group in which 1 to 3 Y^{2a} ,

where $(Y^{2a} Y^{2a})$ is an organic group having 3 to 100 carbon atoms and 1 to 5 crosslinkable cyclic ether structures of:



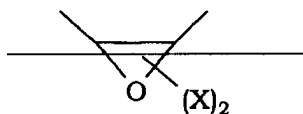
wherein X are the same or different and each is hydrogen atom, fluorine atom, an alkyl group having 1 to 6 carbon atoms or a fluorine-containing alkyl group having 1 to 6 carbon atoms) atoms are bonded to a fluorine-containing alkyl group having 1 to 40 carbon atoms or a fluorine-containing alkyl group having 2 to 100 carbon atoms and ether bond; a is 0 or an integer of from 1 to 3; b and c are the same or different and each is 0 or 1, the structural unit B is a structural unit derived from a monomer copolymerizable with the fluorine-containing ethylenic monomer for the structural unit of said formula (M4-1), said structural unit M4 and said structural unit B being contained in amounts of from 0.1 to 100 % by mole and from 0 to 99.9 % by mole, respectively.

30. (currently amended): A fluorine-containing ethylenic monomer represented by the formula (3):

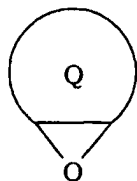


wherein X^1 and X^2 are the same or different and each is H or F; X^3 is H, F, CH_3 or CF_3 ; X^4 and X^5 are the same or different and each is H, F or CF_3 ; Rf is an organic group in which 1 to 3 Y^{2a} ,

where $(Y^2 \text{ } Y^2)$ is an organic group having 2 to 100 carbon atoms and 1 to 5 crosslinkable cyclic ether structures of:

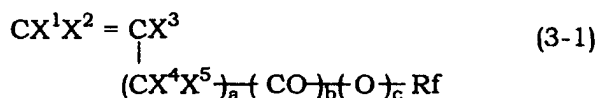


wherein X are the same or different and each is hydrogen atom, fluorine atom, an alkyl group having 1 to 6 carbon atoms or a fluorine-containing alkyl group having 1 to 6 carbon atoms, or an organic group having 3 to 100 carbon atoms and 1 to 5 structures represented by the formula:

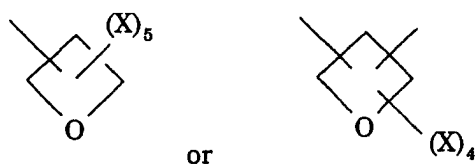


wherein Q is a monovalent or divalent organic group of monocyclic, polycyclic or heterocyclic structure having 3 to 100 carbon atoms in which hydrogen-atom atoms of Q may be are optionally substituted with said X) a hydrogen atom, a fluorine atom, an alkyl group having 1 to 6 carbon atoms or a fluorine-containing alkyl group having 1 to 6 carbon atoms are bonded to a fluorine-containing alkyl group having 1 to 40 carbon atoms or a fluorine-containing alkyl group having 2 to 100 carbon atoms and ether bond; a is 0 or an integer of from 1 to 3; b and c are the same or different and each is 0 or 1.

31. (currently amended): A fluorine-containing ethylenic monomer represented by the formula (3-1):



wherein X^1 and X^2 are the same or different and each is H or F; X^3 is H, F, CH_3 or CF_3 ; X^4 and X^5 are the same or different and each is H, F or CF_3 ; Rf is an organic group in which 1 to 3 Y^{2a} ,
where $(Y^{2a} Y^{2a})$ is an organic group having 2 to 100 carbon atoms and 1 to 5 crosslinkable cyclic ether structures of:



~~wherein~~ wherein X are the same or different and each is hydrogen atom, fluorine atom, an alkyl group having 1 to 6 carbon atoms or a fluorine-containing alkyl group having 1 to 6 carbon atoms) atoms are bonded to a fluorine-containing alkyl group having 1 to 40 carbon atoms or a fluorine-containing alkyl group having 2 to 100 carbon atoms and ether bond; a is 0 or an integer of from 1 to 3; b and c are the same or different and each is 0 or 1.

32. (previously presented): An optical member for optical devices which is obtained from a cured article made by curing the optical material for optical devices of Claim 17.

33. (previously presented): A material for optical waveguide which is obtained from the optical material for optical devices of Claim 17.

34. (previously presented): A member for optical waveguide which is obtained from a cured article made by curing the material for optical waveguide of Claim 33.

35. (previously presented): A material for a sealing member for optical devices which is obtained from the optical material for optical devices of Claim 17.

36. (previously presented): An optical device having a sealing member which is obtained from a cured article made by curing the material for a sealing member of Claim 35.

37. (previously presented): An optical member for display devices which is obtained from a cured article made by curing the optical material for display devices of Claim 24.

38. (previously presented): A material for an antireflection film which comprises the optical material for display devices of Claim 24.

39. (previously presented): An antireflection film obtained by curing the material for an antireflection film of Claim 38.